

Appl. No. 10/708,619
Amdt. Dated September 12, 2005
Reply to Office action of 08/15/2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

5 Claim 1 (cancelled).

Claim 2 (previously presented): A lumped-element transmission line formed in a multi-layered substrate comprising:

- a first inductor formed on a fourth layer of the multi-layered substrate;
- 10 a second inductor formed on a third layer of the multi-layered substrate and electrically connected to the first inductor in series through a first via penetrating the substrate;
- a first capacitor comprising two plates formed on a second layer and a first layer of the multi-layered substrate, wherein the plate formed on the second layer is connected to ground and the plate formed on the first layer is connected to the first via; and
- 15 a positive mutual inductance formed between the first inductor and the second inductor for improving frequency response of the lumped-element transmission line wherein the positive mutual inductance equals to a first value.

20 Claim 3 (original): The lumped-element transmission line of claim 2 wherein the first capacitor is shunt-connected to a second capacitor which comprises two plates formed on a fifth layer and a sixth layer of the multi-layered substrate, in which the plate formed on the fifth layer is connected to ground and the plate formed on the sixth layer is connected to the first via.

25 Claim 4 (original): The lumped-element transmission line of claim 3 wherein the first and second capacitors sandwich the first and second inductors.

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Claims 5-8 (cancelled).

5 Claim 9 (previously presented): The lumped-element transmission line of claim 2 wherein the first and second inductors are rectangular, circular, or octagonal in shape.

10 Claim 10 (previously presented): The lumped-element transmission line of claim 2 wherein the first value is according to an applied frequency range and values of the first inductor, the second inductor, and the first capacitor.

Claim 11 (previously presented): The lumped-element transmission line of claim 2 wherein the first value is according to shapes of and relative distance between the first inductor and the second inductor so that the mutual inductance equals the first value.

15 Claim 12 (previously presented): The lumped-element transmission line of claim 2 wherein at least one inductor is formed on a plurality of layers of the multi-layered substrate..

20 Claims 13-14 (cancelled).